Doug Rothwell, President and CEO
Michigan Economic Development Corporation
Lansing, MI
Testimony for the U.S. House Science Subcommittee on Energy
June 26, 2002

Good morning, Mr. Chairman and subcommittee members. I come before you today to testify about an issue that has tremendous ramifications for our nation's economy, and the economy of the state of Michigan in particular. I am speaking of the impending transition toward fuel cells as a source of power for vehicles and other everyday applications. After decades of research in universities and scientific facilities, certain alternative energy solutions are poised for explosive growth worldwide. That growth will have a direct and profound impact on the U.S. economy, affecting billions of dollars in sales and thousands of workers. Michigan's number one industry is the automotive industry, and it is the automotive industry that is likely to be most impacted as this new technology takes hold in the marketplace.

For this reason such a transition offers tremendous opportunities and tremendous challenges for our state and for the automotive industry. No region in the world is more recognized than Michigan as the global automotive center. According to a recent study, there are currently 27,000 people employed at engine and transmission plants across Michigan, and many more are employed at suppliers who manufacture components such as pistons, valves and camshafts that are tied to the traditional internal combustion engine powered automobile. Michigan has nearly 35 percent of engine manufacturing and more than 39 percent of automatic transmission manufacturing in North America. The advent of a new power system that would supplant the internal combustion engine puts as many

as 200,000 Michigan jobs at risk and would result in the loss of $10 billion to Michigan's economy in the first year alone.

Development of a cost effective fuel cell for use in vehicles will likely make many of these plants and jobs obsolete. These facilities will be replaced by others specifically designed for the construction of fuel cell components and systems.

A visit to this year's International Automobile Show in Detroit provided a glimpse of what is on the horizon. General Motors' prototype fuel cell vehicle, the Autonomy, does not use the transmission, pistons, valves and other parts that nearly the entire automotive industry is now dependent upon.

Someone might say, "But these are just concept and prototype vehicles that are fun to look at but never see widespread production." I will let Bill Ford, Jr., the chairman and CEO of Ford Motor Company, respond to that. Mr. Ford is on record as saying:

> "I believe fuel cell vehicles will end the hundred-year reign of the internal combustion engine as the dominant source of power for personal transportation."

Rick Wagoner, CEO of General Motors, echoed a similar outlook:

> "The 20th century was the century of the internal combustion engine. The 21st century will be the century of the fuel cell."

The automotive industry has already invested $4.5 billion in the development of fuel cells. While that is a significant figure, industry prospects point to the wisdom of their investments. Experts estimate that the market for fuel cells will grow from a very modest $220 million in 2000 to a staggering $95 billion by 2010.

There is, in fact, a danger in that decades of talk about alternative fuel prospects has lulled people into a state in which they will not recognize when a genuinely feasible alternative fuel source is imminently upon them. Despite years of development, solar powered vehicles have not advanced beyond what I would call the "gee-whiz" stage of experimentation. Compare those to Daimler-Chrysler's NECAR, which just a few weeks ago became the first fuel cell powered vehicle to travel from coast to coast. This is a Mercedes-Benz A-Class vehicle that is completely powered by a hydrogen fuel cell. Inside and out it looks like a normal car – something that we might drive to and from work every day. And in the not-too-distant future, we will.

Ladies and gentlemen, in the next 10-20 years energy-efficient fuel cells will be powering many of our vehicles. And, because the technology is highly scaleable, fuel cells can be used to power anything from a laptop computer to a hospital. Therefore, fuel cells will also be powering many of our homes and a host of other day-to-day products.

There are a number of factors driving a move to alternative fuel solutions. At least since the energy crisis in the 1970s we have been acutely aware of a need to reduce our dependence on fossil fuels, particularly imported fuels. Passenger vehicles alone consume

6 million barrels of oil every day in the United States – equivalent to 85 percent of the oil we import. In recent decades there has also been a steadily growing demand for alternative fuels that will not pollute the world we live in. Both of these demands place political pressure on federal and state governments to come up with an acceptable alternative fuel strategy and back it up with substantive actions. The day has finally arrived in which a major alternative energy technology is maturing to the point where it can meet these economic, environmental and political demands.

I very much appreciated the fact that at this year's auto show Energy Secretary Spence Abraham announced that the federal government will be embarking on a new partnership with the automotive industry to accelerate the refinement and production of affordable hydrogen fuel cell powered vehicles, as well as create a national hydrogen supply infrastructure. This represents a significant shift in policy and strategy. For decades the emphasis has been on getting more gas mileage from internal combustion engines, most notably through the Corporate Average Fuel Economy (CAFE) standards adopted by Congress. This new policy recognizes that the future of internal combustion engines is short, and that fuel cells represent the quantum technological leap that will diminish our reliance on foreign oil and reduce or eliminate emissions that are harmful to our environment.

As a partnership between the federal government and the automotive industry, the FreedomCAR program is a welcome step in the right direction toward developing a fuel cell operating system for tomorrow's cars and trucks. The state of Michigan has simultaneously developed a partnership, known as NextEnergy that will provide a central

physical location for such activities to take place in an atmosphere conducive to the acceleration of the alternative energy industry.

As I mentioned, the shift to alternative energy powered vehicles will have a tremendous impact on the state of Michigan. From an economic development standpoint, we recognize the opportunities and challenges presented. That is why Michigan has created the NextEnergy initiative. NextEnergy is a comprehensive set of actions and incentives designed to position Michigan as a center for alternative energy technology research and development, education and manufacturing. There are nine major components to NextEnergy, but I would like to highlight what I consider the most significant from your standpoint as congressional leaders.

The first major component of the NextEnergy initiative will be the NextEnergyZone, approximately 700 acres of prime real estate that the state is contributing towards this effort. The site is located near Ann Arbor, strategically near the University of Michigan and Detroit Metropolitan Airport. Funds will be dedicated for necessary site improvements, construction of incubator space and development of an alternative energy microgrid to power the entire site with new energy systems such as fuel cells. Any company within the NextEnergyZone will operate virtually free of all state and local taxes. The state will also provide a refundable Single Business Tax Credit for companies located within the Zone based on the number of employees they hire.

The core of this Zone will be the NextEnergy Center, a campus composed of laboratory facilities, business incubator space, collaborative meeting space and other

facilities that will support the alternative energy industry. A recent report prepared for the Michigan Economic Development Corporation indicates that there is no critical concentration of private or government research centers, alternative energy companies, suppliers or industry support groups anywhere in the world. Our goal is to position the NextEnergy Center as a site that will fill this void by incorporating a wide range of activities to accelerate the development of the alternative energy industry. Among other things the Center will facilitate and fund industry-university collaborative research and commercialization projects, develop industry support services and develop higher education and technical degree programs in alternative energy enabling technologies.

We will also establish a Michigan NextEnergy Development Fund to seed venture capital funds, provide working capital and/or finance the construction of research, development and manufacturing facilities for alternative energy companies. By this means we will be able to provide key, targeted assistance to startup companies and others who are working toward the commercialization and production of alternative energy products.

As of today the Michigan Legislature has approved all of the bills pertaining to the NextEnergyZone and NextEnergy Center. The Michigan Economic Development Corporation has committed $50 million to the NextEnergy initiative, and the Center is expected to be completed in 2003. As a state we are intent on taking advantage of the new opportunities that the transition to alternative fuel technologies will bring in the very foreseeable future.

Although Michigan has been the automotive capital of the world for more than a century, we cannot take for granted that it will remain so in light of the transition from internal combustion engines to fuel cells. We must work to continue our leadership as the new generation of vehicles unfolds. Likewise, as a nation we cannot assume that the United States will automatically be crowned the leader of alternative energy technology and manufacturing. Companies in Europe, Asia and Canada are already major players, and many other nations are sparring to take the lead.

The NextEnergyZone and NextEnergy Center, although located in Michigan, represent a goal of helping to put the United States at the forefront of alternative energy development and commercialization. At the same time we believe that it is important to create synergies by partnering with other global experts in this field. Thus we have already begun discussions with Fuel Cells Canada and the Stuttgart Economic Development Region in Germany to explore ways to share information and best practices, as well as develop joint programs to advance the industry.

With so much at stake in terms of jobs and our economy, I believe it is vital for Congress to see alternative fuel technologies as worthy of greater attention and investment from the federal government.

To that end, we are proposing the establishment of a federal certification facility within the NextEnergy Center. The U.S. Department of Energy and other federal agencies have a number of alternative energy related research efforts underway across the country. However, there does not appear to be a primary systems integrator that is taking

an inter-disciplinary approach towards certifying the products that will use these new technologies. In addition to the need for certification, we also believe that there are some educational gaps not addressed by current federal initiatives that would be filled very well by the NextEnergy Center and its activities.

The study I referred to previously suggests that there will be a need in the near future to develop a common certification process for stationary and mobile fuel cell technology to facilitate mass manufacturing and public acceptance. The federal facility that we envision at the NextEnergy Center would meet these needs. The facility would serve the following functions:

- Act as an Underwriters' Laboratory to develop industry certification systems and identification of industry gaps and needs;
- Include a collaborative testing facility to offset investment and permitting burdens;
- Fund collaborative industry-university research and development programs;
- Sponsor national conferences and workshops to build visibility for the industry and share knowledge; and
- Develop core curriculums in alternative energy technologies for colleges and universities.

I believe it is in our national interest for Congress to help state and regional initiatives like NextEnergy that compliment federal programs and leverage federal dollars. By continuing to provide tax credits the federal government will encourage businesses and consumers to adopt alternative energy products. Providing matching funds

for complimentary initiatives will accelerate commercialization of new technologies. Funds for additional demonstration projects, technology transfer and industry support services will get these products manufactured at reasonable costs for the public.

NextEnergy was not created by state government alone. It was created by the alternative energy industry, automotive manufacturers and utility companies in collaboration with other companies, higher education representatives, and a host of others. We have learned that the best way to help is to listen to our customers. When the heads of the Big Three automakers talk about fuel cells as the future of their companies, we listen. We have found over the past decade that by bringing together key players we are able to react quickly to the changing demands of the marketplace. It is one reason why we have been so successful in attracting new and expanded business facilities to our state, and in creating new initiatives like NextEnergy and the Michigan Life Sciences Corridor.

It is my hope that after considering this testimony, and hearing from other experts on the subject, you will be inclined to take an active role in furthering the alternative fuel industry in the United States. We in Michigan have a lot at stake in how this transition unfolds in the coming years, and I trust you can appreciate how important it is for us to position Michigan as a leader in this emerging industry – especially as it applies to the development and production of fuel cell powered vehicles. But we also see our state providing America with an opportunity to grow a new industry sector and continue to lead in the development of critical new technologies.

I thank you in advance for your consideration of this matter that is so vital to our national economic interests and to the thousands of families whose livelihoods are tied to the automotive industry.

If you have any questions I would be happy to do my best to answer them for you.